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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/298,751      | 04/23/1999  | SENG-KHOON TNG       | ICEN-P001           | 2402             |

7590

08/18/2003

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EXAMINER

ODLAND, DAVID E

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2662

*16*

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/298,751

Applicant(s)

TNG ET AL.

Examiner

David Odland

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The following is a response to the amendments filed on 06/16/2003.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,7,9 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen (USPN 6,308,189), hereafter referred to as Nguyen.

Referring to claim 1, Nguyen discloses an electronic switching apparatus (a vector word shift mechanism (see figure 3A)) comprising:

a circuit configured to receive at least one input signal from at least one input endpoint (barrel shifters which receives input signals (see items 305 and 306 in figure 3A)), the first circuit having at least one pair of barrel shift registers coupled to at least one of the at least one input endpoint and configured to receive the at least one input signal (two barrel shifters receive input signals and are inherently coupled to an input endpoint (see items 301 and 302 in figure 3A)), the first circuit configured to shift and rotate the at least one input signal and further configured to transmit at least one input signal (the input signals are shifted and rotated and outputted (see figure 3A and column 3 lines 62-67 and column 4 lines 1-4)) and

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a second circuit connected to outputs from the first circuit and configured to send at least one received signal to at least one output endpoint (a secondary circuit (i.e. the AND gates of MUX's of figure 3A and 3B) receive the data output from the barrel shifters and output the data toward an output endpoint (see figures 3A and 3B)).

Referring to claims 7 and 14, Nguyen discloses of a method for electronic signal coupling (a vector word shift mechanism (see figure 3A)), the method comprising the steps of:

receiving a first set of digital signals (a pair of barrel shifters which receive digital input signals (see items 305 and 306 in figure 3A)), the received first set of digital signals being provided to at least one pair of barrel shift registers (the received signals go through a pair of barrel shifters (see items 305 and 306 in figure 3A));

shifting and rotating the first set of digital signals (the input signals are shifted and rotated (see figure 3A and column 3 lines 62-67 and column 4 lines 1-4)); and

transmitting a second set of digital signals (transmitting another set of signals (see items 360 and 361 in figure 3A)), the transmitted second set of digital signals being provided from a plurality of multiplexers (the second set of signals is from plurality of multiplexers (see items 337 and 338 in figure 3A)), the plurality of multiplexers being selectably connected to the barrel shift registers such that at least one signal selected in the first set of digital signals is selectably coupled for transmission in the second set of digital signals (signals coming into barrel shifter 301 can be selected to be input into multiplexer 338 (i.e. the shifters are connected to the MUX's) and output as a part of the second signal set (see figure 3A)).

Referring to claim 9, Nguyen discloses the method as discussed above. Furthermore, Nguyen discloses that the first set of digital signals are transmitted as digital signals in the

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second set of digital signals separately at different times (the input signals to the barrel registers are multiplexed out as another set of signals on different output lines and at a time later than the signals were received (see figure 3A)).

Referring to claim 11, Nguyen discloses the method as discussed above. Furthermore, Nguyen discloses that the step of transmitting further comprises transmitting the at least one output signal to at least one multiplexer at different times (signals coming into barrel shifter 301 are output to multiplexer 338 and as a part of the second signal set at a later time than the signal was input (see figure 3A)).

Referring to claim 12, Nguyen discloses the apparatus as discussed above. Furthermore, Nguyen discloses that the barrel shift register is a loadable barrel shift register (the barrel shifters are loadable with data bits (see figure 3A)).

Referring to claim 13, Nguyen discloses the apparatus as discussed above. Furthermore, Nguyen discloses that the apparatus further comprises a plurality of multiplexer modules (the apparatus comprises a plurality of multiplexers (see items 345 and 346 of figure 3A)).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2,3,5,6 and 10, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen.

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Referring to claim 2, Nguyen discloses the system disclosed above. Nguyen does not disclose that the input signal is configured to be received in serial form includes a plurality of data channels interleaved between them. However, it is well known in the art to transmit and receive and transmit signals that comprise a plurality of interleaved channels in serial form (for example time division multiplexing). It would have been obvious to one skilled in the art at the time of the invention to receive the data in a signal of serial form wherein a plurality of data channels are interleaved therein, in the apparatus taught by Nguyen, because such a data format is commonly used in order to allow the transmit and receive lines to be shared, thereby increasing the efficiency of Nguyen.

Referring to claim 3, Nguyen discloses the system discussed above. Furthermore, Nguyen discloses that the second circuit comprises at least one multiplexer configured to be selectably connected to the at least one pair of barrel shift registers (a multiplexer is connected to a barrel shifter (see figure 3A)) thereby effectively enabling digital signal switching between the at least one input endpoint and the at least one output endpoint (thereby the input signal from an input endpoint is switched to the output signal which is sent to an output endpoint (see figure 3A)). Nguyen does not disclose that the signals are switched simultaneously. However, it would have been obvious to one skilled in the art at the time of the invention to provide simultaneous switching in the system of Nguyen because doing so would make the system operate faster.

Referring to claim 5, Nguyen discloses the switching apparatus as discussed above. Furthermore, Nguyen discloses that the at least one pair of barrel shift registers is configured to interconnect a plurality of received input signals at different times (the barrel shifters interconnect input signals (see figure 3A)).

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Referring to claims 6 and 10, Nguyen discloses the switching apparatus as discussed above. Nguyen does not explicitly disclose that the endpoint is one of the AC97 or 12S conventions. However, it is well known in the art that AC97 and 12S are widely used well-established standards for data coding. Therefore, it would have been obvious to one skilled in the art at the time of the invention to utilize the system of Nguyen in conjunction with the AC97 or 12S conventions because of their well established and widely used standards and so using these already established standards will reduce the cost of having to develop a new coding format.

6. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of Phelps et al. (USPN 4,512,018), hereafter referred to as Phelps.

Referring to claims 4 and 8, Nguyen discloses that the first set of digital signals comprises a data signal that is configured to be received in either serial or parallel form (the barrel shifter receives the data in parallel form (see item 301 and 302 of figure 3)). Nguyen does not disclose that the data signal is converted to serial form when received in parallel form. However, Phelps discloses of a barrel shifter circuit, which receive signals from its parallel inputs (i.e. items A0-A3 of item 40 in figure 2), shifts them, and outputs them in serial form (i.e. output X0 of item 45). It would have been obvious to one skilled in the art at the time of the invention to use the parallel to serial conversion method as taught by Phelps in the method of Nguyen because doing so would allow the system of Nguyen to be more flexible in the types of data it receives (namely, the system of Nguyen will be able to receive parallel or serial data).

***Response to Arguments***

7. On page 6 paragraph 2 and page 7 paragraph 1 of the response, the Applicant contends, with respect to independent claims 1, 7 and 14, that the Nguyen does not teach or disclose a second circuit *connected* to the first circuit because Nguyen shows intermediary circuits such as the AND gates and inverters (items 331, 314 and 335) of figure 3A being located between the shifters and the MUX's. The Examiner respectfully disagrees with this contention. The AND gates and inverters are used as selection logic for the multiplexers in order for the MUX's to be properly connected to the appropriate barrel shift register. Selection logic is needed for any and all multiplexers. Therefore, the barrel shift registers are indeed connected to the MUX's. Furthermore, referring to the Applicants invention, figure 1 shows the plurality of barrel shift registers connected to the plurality of 8-to-1 MUX's. Although not shown in the figure, the 8-to-1 MUX must include selection logic so that one of the 8 inputs can be properly connected to the one output. In the Nguyen reference, the selection logic is shown as external to the MUX's. However, the AND gates and inverters can be considered as part of the MUX circuit since such selection logic must be present and as such can be interpreted as the circuit shown in figure 1 of the present invention and thus the limitations of claims 1, 7 and 14 are anticipated.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO



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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland, who can be reached at (703) 305-3231 on Monday – Friday during the hours of 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (703) 305-4744. The fax number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, who can be reached at (703) 305-4750.

deo

August 15, 2003

  
HASSAN KIZOU  
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